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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SINGH, RAMNANDAN P	
ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/784,827	PRENDERGAST ET AL.	
	Examiner	Art Unit	
	Ramnandan Singh	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on Aug 16, 2004 and Interview summary mailed Nov. 10, 2004.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 and 19-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16 and 19-25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on August 16, 2004 have been fully considered but they are not persuasive.

(i) Applicants' argument---"In an attempt to provide the motivation to combine these two references , the Examiner states that since "[Ehlig et al] do not describe the construction of the digital to analog (D/A) converter 539 [, one] of the ordinary skill in the art would have been motivated to seek any D/A circuit suitable to receive a digital input and convert the digital input into an analog output , such as the D/A circuit of Davis et al [.]" The lack of a description of Ehlig et al's D/A circuit construction , however, is not an appropriate teaching , motivation , or suggestion to combine the teachings of Ehling et al with another reference" on page 8.

Examiner's response—In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1992). In this case, in order to construct the Ehlig et al's invention, the knowledge of one of the ordinary skill in the art comes into play to fulfill the lack of details of the Ehlig et al's D/A circuit construction.

(ii) Applicants' argument—"In fact, with one exception in claim 5 , Davis et al is nearly silent about the use of a constant average voltage output signal" on page 9.

Examiner's response—The Examiner disagreed. In this context, the Applicant is respectfully directed to Davis et al for more details [col. 2, lines 34; Abstract; Figs. 5, 6; col. 17, line 66 to col. 18, line 67].

(iii) Applicants' argument— "it is improper to use the Applicants' disclosure as a blue print for conducting a hindsight § 103 analysis" on page 9.

Examiner's response---In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

2. **Status of Claims**

Claim 21 is currently amended.

Claims 17-18 are cancelled.

Claims 1-16 and 19-25 are pending.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-7, 13-16 and 21-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlig et al [US 5,550,993] in view of Davis et al [US 4,539,552].

Regarding claim 1, Ehlig et al teach analog communication across an isolation barrier in the form of a data access arrangement (DAA) 787 shown in Fig. 10, wherein this DAA may comprise a single isolation element or a mixture of multiple isolating elements in parallel such as capacitors, transformers, and optical isolators.

The analog communication system comprises a digital to analog (D/A) converter 539 having an analog output S(t) connected to the DAA; an analog to digital (A/D) converter 785 having an input coupled to the analog output of the DAA for providing a digital output [Figs. 10-12, 18; col. 31, lines 14-56; col. 34, lines 15-34]. However, Ehling et al do not describe the construction of the digital to analog (D/A) converter 539. So one of the ordinary skill in the art would have been motivated to seek any D/A circuit suitable to receive a digital input and convert the digital input into an analog output, such as the D/A circuit of Davis et al [US 4,539,552], which also provides a constant average analog output signal [Davis et al: Fig. 9; col. 18, lines 53-59]. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the digital to analog circuit of Davis et al for the digital to analog (D/A) converter 539 of Ehlig et al [Davis et al; col. 2, lines 20-26; col. 1, lines 60-63].

Regarding claim 2, Fig. 10 of Ehlig et al shows a digital to analog (A/D) converter 539 of Ehling et al to provide a constant average analog output signal [Davis et al: Fig. 9; col. 18, lines 53-59] to the isolation barrier.

Claim 21 is essentially similar to the combination of claims 1 and 2 except a bi-directional isolation system. Ehling et al teach a bi-directional isolation system 787 shown in Fig. 18.

Regarding claim 3, Ehling et al teach a digital modulator 533 connected to the D/A 539 [Fig. 10] wherein the D/A provides a constant average analog output signal [Davis et al: Fig. 9; col. 18, lines 53-59] to the isolation barrier.

Regarding claim 4, Ehling et al teach an analog to digital (A/D) converter 521 [Fig. 11].

Regarding claim 5, Ehling et al teach an analog communication system that includes a D/A converter 539 and an A/D converter 521 [Figs. 10-12, 18].

Claim 6 is essentially similar to claim 2 and is rejected for the reasons stated above.

Claim 7 is essentially similar to claim 4 and is rejected for the reasons stated above.

Regarding claims 13-16, Ehlig et al teach data and control information [Fig. 16] supplied by two-way communication paths DSP 653 and a second device 11 [col. 32, lines 66-67; col. 33, lines 1-16].

Regarding claims 22-23, Ehlig et al teach analog communication with a bi-directional isolation system 787 [Fig. 18].

Regarding claim 24, Ehlig et al teach an echo canceller 515 to improve the transmission of a communication circuit [Fig. 9; col. 27, lines 54-62; col. 31, lines 7-13].

Regarding claim 25, Ehling et al teach an analog to digital (A/D) converter 785 having an input coupled to the analog output of the DAA for providing a digital output [Fig. 18].

5. Claims 10, 12 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ehlig et al and Davis et al as applied to claims 1-7 above , and further, in view of Yurgelites [US 5,500,895].

Regarding claim 10, Ehlig et al teach a generic DAA; it does not disclose expressly an isolation element, such as capacitor of the DAA.

Yurgelites discloses analog communications using a DAA 22 having a capacitive isolation barrier using capacitors as shown in Fig. 2 [Figs. 1-3; col. 1, line 59 to col. 2, line 24; col. 3, lines 12-67].

Ehlig et al, Davis et al and Yurgelites are analogous art because they are from a similar problem solving area, viz. , telephonic communications across a DAA.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the isolation element of the DAA of Yurgelites with Ehlig et al.

The suggestion/motivation for doing so would have been to provide an explicit description of the DAA for its operational use with the Ehlig et al system.

Regarding claim 12, Yurgelites teaches the analog communication technique that significantly reduces common mode noise [col. 4, lines 47-58].

Regarding claim 19, the combination of Ehlig et al and Davis et al teaches an isolation system [Ehlig et al; Figs. 10, 12, 18] in which the input analog signal is a constant average signal to the isolation system [Davis et al; Fig. 9; col. 18, lines 53-59].

Claim 20 is essentially similar to claim 19 and is rejected for the reasons stated above apropos of claim 19.

6. Claims 8-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ehlig et al and Davis et al as applied to claims 1-7 above, and further, in view of either Scott et al [US 6,587,560 B1] or Rahamim et al [US 6,081,586].

Regarding claims 8-9 and 11, Ehlig et al teach a generic DAA; it does not disclose expressly an isolation element, such as capacitor or a transformer of the DAA and a termination resistance. However, these elements for a DAA are well known in the art of both analog and digital communications across an isolation barrier.

Scott et al discloses analog communications across a DAA having isolation barriers with capacitors and transformers [col. 2, line 15 to col. 3, line 8].

Ehlig et al, Davis et al and Scott et al are analogous art because they are from a similar problem solving area, viz. , telephonic communications across a DAA.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the isolation element of the DAA of Scott et al with the combination of Ehlig et al and Davis et al.

The suggestion/motivation for doing so would have been to provide an explicit description of the DAA for its operational use with the Ehlig et al system.

Regarding claims 8-9 and 11, the combination of Ehlig et al, Davis et al and Rahamim et al discloses a DAA having isolation barriers with capacitors and transformers [Rahamim et al; Figs. 3B-3E]; and teach terminating resistances 412, 413 and 430, 426 across the isolation barrier [Rahamim et al; Fig. 5].

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ehlig et al and Davis et al as applied to claims 1-7 above, and further in view of Chea, Jr. [US 4,387,273].

Regarding claim 12, the combination of the combination of Ehlig et al and Davis et al does not teach expressly a common mode interference signal sensing circuit and a summing circuit to remove the common mode interference signal.

Chea, Jr. teachers a common mode interference signal sensing circuit and a summing circuit to remove the common mode interference signal [col. 2, lines 64-67; col. 3, lines 1-3; col. 6, lines 36-54; col. 1, lines 55-67].

Ehlig et al and Chea, Jr. are analogous art because they are from a similar problem solving area, viz. , telephonic communications.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the common mode rejection technique of Chea with the combined system Ehlig et al.

The suggestion/motivation for doing so would have been to reduce the power dissipation in the interface circuitry of the isolation barrier [Chea, Jr. ; col. 1, lines 7-12].

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramnandan Singh
Examiner
Art Unit 2644

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XU MEI
PRIMARY EXAMINER